

REMARKS

In the Action, claims 3, 36 and 37 are rejected, and claims 1, 2 and 4-35 are withdrawn from consideration as being directed to the non-elected invention. In response, claim 3 is amended to include the subject matter of claim 36 and claim 36 is cancelled. The non-elected claims 4-35 are also cancelled by this Amendment. In view of these amendments and the following comments, reconsideration and allowance are requested.

Rejection Under 35 U.S.C. § 112

Claims 3, 36 and 37 are rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description. The Action contends that the language in claim 3 reciting “less than 75 weight %” is not supported by the specification. Claims 36 and 37 appear to be rejected on the basis that these claims depend from claim 3, but are not separately rejected.

In response, claim 3 is amended to include the subject matter of claim 36. As amended, claim 3 recites that the solid component concentration in the hydropolymer is 73 weight % or less. In view of this amendment, claim 3 and claim 37 are submitted to be fully supported by the specification as originally filed. Accordingly, Applicants respectfully request the rejection be withdrawn.

Rejection Over the Cited Art

Claim 3 is rejected under 35 U.S.C. § 102(b) as being anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 4,155,888 to Mooth. Claims 36 and 37 are not rejected over the art of record. As amended, claim 3 includes the subject matter of claim 36. Thus, the amendment to claim 3 is submitted to obviate the rejections over Mooth.

Mooth does not disclose or suggest the claimed process steps as now recited in amended claim 3. In particular, Mooth does not disclose a process of polymerizing water-absorbent resin forming monomer including acrylic acid and/or its salt as a major component, at a temperature of not lower than 50°C for less than 3 minutes, where the resulting hydropolymer formed by the polymerization has a solid component concentration of 73 weight % or less.

Mooth is directed to a water-absorbent starch product by reacting a starch with an ethylenically unsaturated monomer. The resulting starch product as disclosed in column 8, lines 20-24, contains “less than 25% by weight water”. Since the resulting product of Mooth contains less than 25 weight % water, the resulting product inherently has a solid content of greater than 75 weight %. Thus, the resulting product of Mooth does not have a solid content of 75 weight % as suggested in the Action. Furthermore, Mooth provides no motivation or incentive to one of ordinary skill in the art to produce a water-absorbent resin as claimed having a solid component concentration of 73 weight % or less as now recited in claim 3. The solid component concentration as now claimed is clearly outside the range disclosed or suggested by Mooth. Accordingly, claim 3, as amended, is neither anticipated by nor obvious over Mooth.

Mooth is directed to a different process for producing a water-absorbent starch product that is different from the claimed hydropolymer. The process of Mooth simultaneously polymerizes the monomer solution and dries the resulting product. The process of Mooth produces a dried product and does not produce the claimed hydropolymer. Mooth discloses the simultaneous polymerization and drying process by extrusion, heating exchanging, rotating, calendaring, spray drying, flash drying and drum drying. See, for example, column 8, lines 3-7 of Mooth. In contrast, the present invention polymerizes an aqueous solution of the monomers to produce a solid content concentration of 73 weight % or less. As disclosed on page 2, line 10 through page 3, line 11 of the present specification, the simultaneous polymerization and drying

process as in Mooth results in dried products that have high extractable content for their respective absorption capacities. Mooth is an example of the prior processes that produce dried products having high extractable contents. Therefore, Mooth is an example of the prior processes having the above-noted disadvantage, which the present invention seeks to avoid.

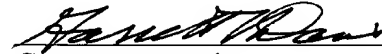
The present invention is directed to a process for producing a water-absorbent resin having improved water-absorption capacity, a low extractable content and a low residual monomer content compared to the prior processes such as Mooth. Claim 3 recites that the process is a solution polymerization process where the initial polymerization temperature is not lower than 50°C and the polymerization time is shorter than 3 minutes to produce a hydropolymer having a solid component concentration of 73 weight % or less. The process of the claimed invention produces a water-absorbent resin having a solid component concentration of 73 weight % or less in spite of the high polymerization initiation temperature and the short polymerization time. As disclosed on page 6, lines 12-16, the conventional hydropolymers having a high solid component concentration are difficult to handle. In addition, it is difficult to reduce the particle size of the resulting hydropolymer for use as water-absorbing agents.

In view of the above comments, and these amendments, Mooth does not disclose or suggest the process now recited in claim 3. In particular, Mooth does not disclose the combination of the polymerization temperature of not lower than 50°C, polymerization time shorter than 3 minutes, and a resulting hydropolymer having a solid component concentration of 73 weight % or less. Accordingly, claim 3 is not anticipated or obvious over Mooth.

Claim 37 depends from claim 3 to further define the hydropolymer having a solid component concentration of 60 weight % to 73 weight %. Mooth does not disclose or suggest a hydropolymer having the claimed solid component concentration recited in claim 37. Accordingly, claim 37 is allowable over Mooth.

In view of the above, claims 3 and 37 are allowable over the art of record. Accordingly, reconsideration and allowance of the claims are requested.

Respectfully submitted,



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